



## FIRST TAXING DISTRICT WATER DEPARTMENT

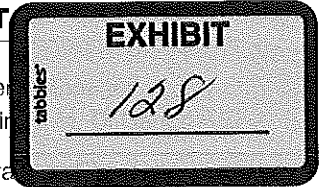
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February 1, 2010

BUREAU OF WATER PROTECTION AND LAND USE  
OFFICE OF THE BUREAU CHIEF  
FEB 02 2010

Paul Stacy, Director  
Bureau of Water Protection and Land Use  
State of Connecticut  
Department of Environmental Protection  
79 Elm Street  
Hartford, CT 06106-5127

Re: Comments on the Department's Proposed Streamflow Standards and Regulations

Thank you for the opportunity to comment on the proposed streamflow standards and regulations. The Norwalk First Taxing District Water Department (the District) strongly supports protecting and improving the environment. We understand the connection between proper environmental safeguards, and effective oversight of water quality. We manage and control over 471 acres of land in our 10.2 square mile watershed, actively participate in decisions regarding development in all tributary lands that might adversely impact our water quality and participate in the aquifer protection program for the City of Norwalk. We support the protection of valuable environmental assets.

These regulations would significantly impact District operations. Since our water supply system relies both on surface water reservoirs and groundwater supplies to meet our customer demands, and since the regulations propose to limit these as sources of water supply, we believe that the regulations may prohibit us from meeting our customer demands without significant financial investments. Our comments on the program are as follows:

## **1. Legislative Intent**

The Legislature in P. A. 05-142 did not intend to reopen registered diversions nor extend the proposed regulations to groundwater sources. Again in 2006 the legislature declined to include registered diversions in the revision of streamflow regulations.

## **2. The sequence of implementation of the regulations should be changed**

Under the current proposal, the Department proposes to establish the diversion rules first, and to then classify the rivers to which these rules apply. This leaves everyone in the lurch; whether we should worry about the specific diversion restrictions for differing classes of rivers depends on the classification of our rivers, and the impacts on our supplies. We can only speculate about the classification of the Silvermine and Norwalk Rivers, at this point; making us wary of all diversion restrictions. Accordingly, we suggest that the Department alter the implementation to first classify the rivers, and then propose specific diversion rules for the classes of these rivers.

This altered implementation schedule provides several benefits. First, it gives a level of certainty to all reviewers as to the nature of their rivers, and allows a more focused discussion of specific diversion rules. Second, it provides the Department with the ability to refine the current diversion rules to reflect different conditions that will inevitably be found across the State's watersheds, even within the same class of river. Finally, it affords the Department the opportunity to integrate "lessons learned" in the classification process and to incorporate new findings on the basic science of streamflow regulation that are emerging nationwide.

## **3. The timeframes for implementation of the first phase should be longer**

As proposed, the first set of diversion rules become effective five years after the classification process. For suppliers who find that the classification effectively requires new sources of supply, the five year period is woefully inadequate. We expect that within one year following classification, a supplier will know if they must obtain new sources of supply. Assuming that the supplier needs to find a new source, acquire permits for that source, and then design, construct and commission the source, four years is too short a time to accomplish these tasks.

As an alternative to or perhaps in conjunction with seeking a new source, the supplier might propose to develop a flow management compact for the DEP's

consideration. Development, coordination amongst various stakeholders and implementation of the plan is likely to take longer than four years.

For these reasons, the regulations should make provision for extending the compliance timeframes for the first phase of the proposed program in circumstances where the diversion rules require suppliers to obtain new sources.

#### **4. The Diversion Rules may severely limit the District's water supply safe yield**

Previous studies conducted by the District indicate that the safe yield of the it's reservoir system is 4.00 mgd, and 3.75 mgd for the Kellogg-Deering Well Field. Neither calculation explicitly took environmental releases into effect, although the reservoir studies did account for downstream releases via seepage of approximately 10 % of the safe yield. The development of studies that would fully characterize the impacts of the proposed flow regulations on the yields of our supplies was not possible within the time limits of the comment period for the draft regulations, and would have been extremely expensive. Nonetheless, we have made preliminary evaluations of the possible impacts of the new rules on our yield.

To estimate the impacts of the new regulations we have created a synthetic gage record for each supply source, and have applied the diversion restrictions for class two and three rivers to that synthetic record. The synthetic record was created by using the long term record from a nearby un-impacted reference gage (USGS 01188000 near Burlington, CT) to create a daily yield in cubic feet per second per square mile (cfsm) of watershed tributary to the gage. That yield and the tributary areas of the reservoir system (10.2 square miles) and the well field (56.5 square miles) were then used to create a synthetic record for each source. This resulted in a record spanning the period from October of 1931 to September of 2009 for each source. For each bioperiod, relevant statistics, such as Q99, Q95, Q90, etc were then calculated. For each day within the period of record, the net amount of water available to be diverted was also calculated

The change in water available for diversion between the current condition and under the proposed diversion rules is a useful measure of the impact of the diversion rules on the safe yield of the system. However, it doesn't fully capture the effect, due to other factors that could impact safe yield, but serves as an indicator of likely impacts.

### ***Impact on Reservoir Yields***

As the safe yield of reservoir systems are generally set by the amount of water available during extended dry periods, we took the impacts of the diversion restrictions in 1965 as the most appropriate measure of the impacts of the diversion rules on the yield of the reservoirs. 1965 represents the driest of the drought years of the 1960's and often controls the yield of water systems. The net amount available for diversion was the streamflow minus the required downstream releases according to the Department's proposed release rules. The impacts of the low level diversion rules applied to the District's reservoirs during the 1965 drought are as follows:

<b>Impact of Diversion Rules on Water Available for Diversion</b>		
<i>River Classification</i>	<i>Water Available for Diversion, mgd</i>	<i>Reduction over present, %</i>
Current	5.59	0
Class 2	1.4	75
Class 3	3.1	45

Because this analysis does not take into account the multiple level release rules – which would likely decrease water available for storage, or the impacts of conservation, the figures are best characterized as indications of the impacts of the diversion rules.

### ***Impacts on Well Field Yield***

The District's well field system is directly adjacent to the Kellogg and Deering ponds on the Norwalk River, approximately one mile upstream of the influence of Long Island Sound. At this location the watershed of the river encompasses approximately 56.5 square miles, including the 10.2 square mile watershed of the reservoir system. The well system is used to provide supplemental water to meet peak system demands in excess of the output of the reservoir system. The maximum use of the well field occurs in dry summers, when the reservoir system has been drawn down, and has limited water available for use. This coincides with the rearing and growth bioperiod, which extends from July 1 through October 31 each year. Under the proposed diversion rules, the maximum allowable reduction in streamflow owing to the operation of the wellfield is between 25 and 50 % of the Bioperiod Q99 flow in the river for Class 2 and Class 3 rivers, respectively.

Using the synthetic gage data described above, the Q99 flow for the rearing and growth Bioperiod is estimated at approximately 4.5 mgd. Under the proposed rule, the maximum allowable river flow reduction is either 25% of the Bioperiod Q99 for a class 2 river, or 50 % of the Bioperiod Q99 for a class 3 river. This suggests the maximum well field yield is either 1.1 mgd for a class 2 river, or 2.3 mgd for a class 3 river. This assumes that there is a 1:1 correspondence between river drawdown and well field production. This is a conservative assumption, but again serves to indicate the magnitude of the impacts of the proposed rule upon District operations.

### ***Summary of potential impacts***

Based on the analyses conducted to date the proposed diversion regulations could lower the combined capacity of the District's reservoirs and well field. Although further work is necessary to fully quantify the impacts of these regulations, it appears that the combined yield would drop from about 7.75 mgd under current conditions, to about 5.4 mgd if the River were classified as Class 3, and 2.5 mgd if the River were classified as a Class 2 River. Reductions of these magnitudes would require the District to find even more supplemental sources of supply requiring additional reservoirs or diversion structures with their attendant environmental impacts.

## **5. Miscellaneous Considerations**

### ***The basis for the specific release requirements should be documented***

We understand that development of the various release requirements and maximum flow reductions involved considerable effort, and substantial expertise. To date, however, there has been no synthesis of the rationale that lies behind specific release requirements for various bioperiods for different classes. Before the release requirements are finalized, the Department should produce and circulate such a document. This would serve to provide a better understanding of the requirements, and help establish practical benchmarks for those utilities who seek to develop water management compacts as allowed by the regulations.

### ***The petition provision should be struck from the regulations***

The regulations provide that anyone may petition for reclassification of a river. By rule, it appears that this can happen on cycles as short as 3 year time frames. While we understand the need for some re-evaluation process, the regulation leaves open the potential that the classification of a river could be continually in flux. Public water suppliers cannot effectively plan their capital facilities if they cannot be reasonably assured that the facilities will be in service for a reasonable

length of time. For this reason, we suggest that the petition provision be dropped from the rules, and that the Department establish a rule that requires the periodic evaluation of the classification of a river. We suggest that a classification review every 20 years is an appropriate time frame, consistent with the life cycles of water management compacts, and traditional utility planning.

#### ***Class 4 Rivers***

The Class 4 designation must be maintained to provide for appropriate use where the nature of the stream has been heavily changed by man or the impact to human use would be too great from a higher classification.

#### ***The geographic scope of the regulation should be clear.***

The District owns and operates facilities in adjacent States. We presume that these regulations do not apply to facilities in those States.

#### ***Guidance Documents***

The Department should release guidance documents on calculating the statistical streamflows and how to assess wells downstream of reservoir(s).

We appreciate the opportunity to submit this information to you. Please feel free to contact my office if you have any questions or require additional information.

Very truly yours,



Dominick M. Di Gangi, P.E.  
General Manager

cc: Board of Commissioners  
Senator Bob Duff  
Representative Lawrence Cafaro  
Representative Chris Perone  
Representative Bruce V. Morris  
Representative Peggy Reeves